PROJECT NUMBER : 2705
PROJECT TITLE : Tomorrow
PROJECT LEADER : R. W. Dwyer
PERIOD COVERED : February, 1991

I. PROJECT TOMORROW

A. **Objective:** Explore the feasibility of developing a test for measuring the ignition propensities of cigarettes.

B. **Status:** A test apparatus has been constructed in which the flow rate of air through a fabric/foam rig can be programmed. This apparatus was used with a variety of smouldering cigarettes to ascertain the flow rate necessary to cause smouldering ignition in a rayon fabric. Preliminary results suggest this method may give more reproducible results than previous flow methods, but many more tests need to be performed in order to obtain statistically significant results. We have also treated the rayon fabrics with a variety of burn promoters. The goal of this aspect of the work is to determine if the flammabilities of the fabrics can be adjusted so that we can discriminate between the ignition propensities of cigarettes.

C. **Plans:** We plan to continue testing this apparatus using cigarettes designed to have mass burn rates ranging from 35 to 60 mg/min.

II. PROJECT TOMORROW

A. **Objective:** Determine the thermal properties of cigarettes and substrates in order to correlate their design properties with their flammabilities.

B. **Status:** A calorimetric method and apparatus have been constructed for measuring the heat outputs of cigarettes. Preliminary results show good correlations between cigarette heat flux and their mass burn rates. A method has also been developed to measure the effects of burn promoters on the ignition temperatures of rayon fabrics.

C. **Plans:** A series of cigarettes has been obtained in which the properties of the wrapper have been varied systematically. These properties include permeability, chalk level, basis weight, and burn additive type and level. The heat outputs of these samples will be measured.

III. PROJECT TOMORROW

A. **Objective:** Develop catalysts to reduce the delivery of CO of cigarettes.

B. **Status:** A Pt/Fe_2O_3 catalyst was prepared according to instructions provided by Dr. Augustine of Seton Hall. The material was dried and calcined at 400° for 5 hours. The preparation was easy to implement and the catalyst showed good activity in oxidizing CO at room temperature.

2022201730

Source: https://www.industrydocuments.ucsf.edu/docs/jzjm0000

C. **Plans:** This catalyst is a fine powder. We are examining means of supporting it on larger particle-size materials in order to incorporate it into cigarette filters.

2022201731

Source: https://www.industrydocuments.ucsf.edu/docs/jzjm0000